reputations as gravity monsters and destructive forces, black holes are actually indispensable partners in the creation of galaxies, most astronomers believe.

March 26

New Record: Most Distant Galaxy

As astronomers peer deeper into the universe, they find galaxies that set new distance records in very incremental fashion. The latest, announced recently, comes from the Subaru telescope. The galaxy is seen as it existed when the universe was about 900 million years old.

The galaxy is a mere pinpoint of light in the new observations.

Astronomers measure distance to the most faraway objects by noting their redshifts. All galaxies recede from one another in our expanding universe, and the most distant galaxies recede at faster rates. This stretches a galaxy's light to longer wavelengths, toward the red end of the spectrum. The new record holder sits at redshift 6.58, or about 12.8 billion light-years away based on the latest estimates for the age of the universe.

The discovery was part of the Subaru Deep Field observations, a project of the National Astronomical Observatory of Japan. The telescope is located at the summit of Mauna Kea in Hawaii.

March 25

ESA's Integral Telescope Spots High-Energy Space Bursts

The European Space Agency's Integral satellite was designed to study high-energy events in space. Four months after launch, it is proving surprisingly adept at spotting the most explosive phenomenon known, the gamma-ray burst, which can briefly outshine billions of normal stars.

"We made Integral to study supernovae, black holes, and neutron stars, yet already we see how this versatile satellite can contribute greatly to the field of gamma-ray bursts," said Chris Winkler, Integral project scientist.

Gamma-ray bursts (GRBs) are mysterious flashes of energy -- even more extreme than X-rays -- that emanate from all parts of the universe almost constantly. Studies have tied them to supernovae and the creation of black holes, but astronomers don't know what sort of engine, exactly, is behind the brief flashes of radiation.

The primary challenge in studying the transient bursts is to spot one and get a worldwide network of telescopes, observing in various wavelengths, trained on it before it fades to oblivion. In the moments and hours after a GRB is first noted, an afterglow of X-rays, visible light and even radio waves can emanate from the same location in deep space.

Integral (International Gamma Ray Astrophysics Laboratory) has four instruments -- including X-ray and optical imagers in addition to the gamma-ray monitor -- and so can study GRBs good detail all by itself. Since its October launch, four GRBs have gone off in the satellite's field of view. [GRBs and Black Hole Birth]

-- Robert Roy Britt

March 24

Arthur C. Clarke Interview Broadcast on Web Today